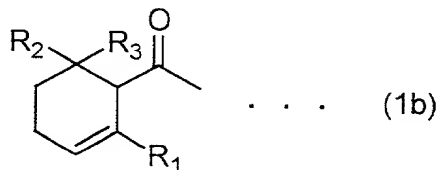
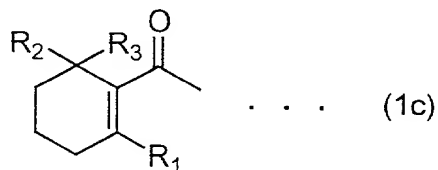


WHAT IS CLAIMED IS:

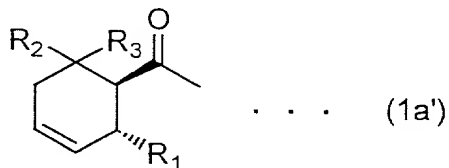
1. A process for producing a 2-cyclohexenyl methyl ketone represented by the following formula (1b):



wherein,  $R_1$ ,  $R_2$  and  $R_3$  each independently represents a hydrogen atom or a methyl group and at least two of  $R_1$ ,  $R_2$  and  $R_3$  represent a methyl group, a 1-cyclohexenyl methyl ketone represented by the following formula (1c):

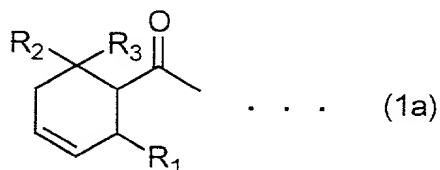


wherein  $R_1$ ,  $R_2$  and  $R_3$  have the same meanings as defined above, a trans-3-cyclohexenyl methyl ketone represented by the following formula (1a'):



wherein  $R_1$ ,  $R_2$  and  $R_3$  have the same meanings as defined above, or a mixture of the cyclohexenyl methyl ketones of the formulas (1b) and (1c), which comprises

isomerizing, in the presence of a catalyst, a 3-cyclohexenyl methyl ketone represented by the following formula (1a):



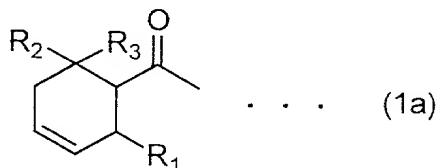
wherein,  $R_1$ ,  $R_2$  and  $R_3$  have the same meanings as defined above, and

optionally distillating the mixture.

2. A process according to claim 1, wherein the catalyst is an alkali metal alcoholate.

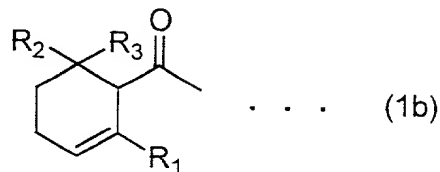
3. A process according to claim 2, wherein the alkali metal alcoholate is an alcoholate having an alkali metal selected from sodium, potassium or lithium and a lower alkoxy group having 1 to 4 carbon atoms.

4. A process for isomerizing, in the presence of a catalyst, a 3-cyclohexenyl methyl ketone represented by the following formula (1a):

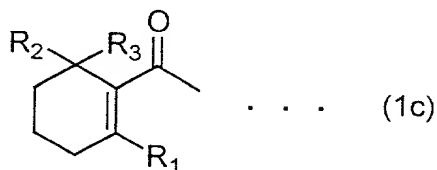


wherein,  $R_1$ ,  $R_2$  and  $R_3$  each independently represents a hydrogen atom or a methyl group and at least two of  $R_1$ ,  $R_2$

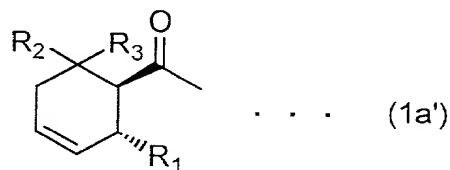
and R<sub>3</sub> represent a methyl group, into a 2-cyclohexenyl methyl ketone represented by the following formula (1b):



5 wherein R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> have the same meanings as defined above, a 1-cyclohexenyl methyl ketone represented by the following formula (1c):

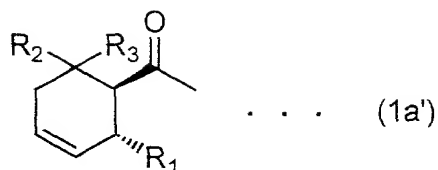


10 wherein R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> have the same meanings as defined above, a trans-3-cyclohexenyl methyl ketone of formula (1a'):

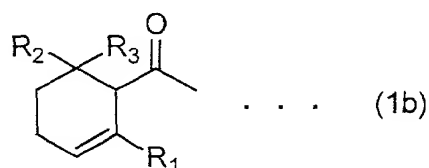


15 wherein R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> have the same meanings as defined above, or a mixture of the cyclohexenyl methyl ketones of the formulas (1b) and (1c) and (1a').

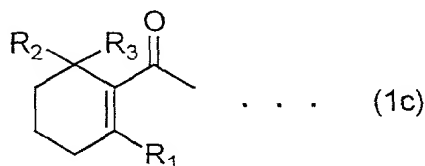
5. A process for producing a mixture consisting essentially of a trans-3-cyclohexenyl methyl ketone of  
20 formula (1a'):



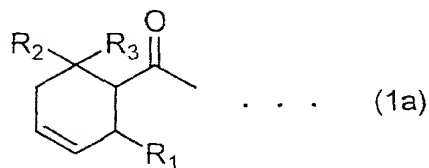
wherein  $R_1$ ,  $R_2$  and  $R_3$  each independently represents a hydrogen atom or a methyl group and at least two of  $R_1$ ,  $R_2$  and  $R_3$  represent a methyl group, a 2-cyclohexenyl methyl ketone of formula (1b):



wherein  $R_1$ ,  $R_2$  and  $R_3$  have the same meanings as defined above, and a 1-cyclohexenyl methyl ketone of formula (1c):



wherein  $R_1$ ,  $R_2$  and  $R_3$  have the same meanings as defined above, which comprises isomerizing, in the presence of a catalyst, a 3-cyclohexenyl methyl ketone represented by the following formula (1a):



wherein,  $R_1$ ,  $R_2$  and  $R_3$  have the same meanings as defined above.